

CLAIMS

1. A method comprising:

estimating, on the basis of a constellation error in a received OFDM signal, an extent of an I/Q imbalance error, caused by direct IQ conversion of said received OFDM signal; and

on the basis of said extent, estimating an equalizing transformation that reduces said error.

2. The method of claim 1, further comprising applying said equalizing transformation to said received signal.

3. The method of claim 1, wherein estimating an extent of an I/Q imbalance error comprises estimating a transmitted symbol corresponding to said received OFDM signal.

4. The method of claim 1, wherein estimating a transformation comprises evaluating an equalizer matrix.

5. The method of claim 1, wherein estimating a transformation comprises:

evaluating a first transformation on the basis
of a first portion of a spectrum of said OFDM
signal;

evaluating a second transformation on the
basis of a second portion of said spectrum;
and

combining said first and second
transformations to obtain said equalizing
transformation.

6. The method of claim 5, further comprising selecting said second portion of said spectrum to include image frequency components of said spectrum.
7. The method of claim 6, wherein selecting said second portion to include image frequency components comprises selecting said second portion to include negative frequency components of said spectrum.
8. The method of claim 1, wherein estimating an equalizing transformation comprises estimating a frequency dependent transformation.
9. A receiver comprising:

an I/Q imbalance estimator for estimating, on
the basis of a constellation error of a

received OFDM signal, an I/Q imbalance error,
caused by direct conversion of said received
signal ; and

an adaptive filter system in communication
with said I/Q imbalance estimator for
generating an equalizing transformation for
reducing said I/Q imbalance error.

10. The receiver of claim 9, further comprising a mixer in communication with said adaptive filter system for applying said equalizing transformation to said received signal.
11. The receiver of claim 9, wherein said adaptive filter system comprises a first adaptive filter for generating a first transformation on the basis of a first portion of a spectrum of said received OFDM signal and a second adaptive filter for generating a transformation on the basis of a second portion of said spectrum.
12. The receiver of claim 11, wherein said second adaptive filter is configured to receive a second portion that includes image frequency components of said spectrum.
13. The receiver of claim 12, wherein said second adaptive filter is configured to receive a second portion that includes negative frequency components of said spectrum.

14. The receiver of claim **9**, further comprising a weight-update block in communication with said adaptive filter system and said I/Q imbalance estimator, said weight-update block being configured to update weighting coefficients of said adaptive filter system on the basis of an error signal provided by said I/Q imbalance estimator.
15. An adaptive filter system comprising
 - a first adaptive filter for generating a first transformation on the basis of a first portion of a received OFDM signal spectrum; and
 - a second adaptive filter for generating a second transformation on the basis of a second portion of said spectrum.
16. The adaptive filter system of claim **15**, wherein said second adaptive filter is configured to receive a second portion of said spectrum that includes image frequency components of said spectrum.
17. The adaptive filter system of claim **14**, further comprising a weight-update block in communication with each of said first and second adaptive filters, said weight-update block being configured to determine

weighting coefficients for said first and second
adaptive filters on the basis of an error signal.

18. A transmitter comprising:

an I/Q imbalance estimator for estimating, on the
basis of a constellation error of an OFDM
signal, an I/Q imbalance error, caused by direct
conversion of said signal; and

an adaptive filter system in communication with
said I/Q imbalance estimator for generating an
equalizing transformation for reducing said I/Q
imbalance error.

19. The transmitter of claim **18**, wherein said adaptive
filter system comprises a first adaptive filter for
generating a first transformation on the basis of a
first portion of a spectrum of said OFDM signal and a
second adaptive filter for generating a transformation
on the basis of a second portion of said spectrum.

20. The transmitter of claim **19**, wherein said second
adaptive filter is configured to receive a second
portion that includes image frequency components of said
spectrum.